



Yoogli Digital Music White Paper

Introduction

Digital music's popularity has never been greater. Consumer electronics playing digital music formats have created a medium that is immensely popular with both genders in the 13 – 35 demographic. This demographic has historically defined itself by its music preferences and digital music has only increased this identification. Where before music preferences could only be explored at the jukebox, in the automobile or at home in front of the stereo, digital music players have allowed people to take this form of expression with them everywhere. Consequently this identification though one's music tastes has become stronger. Yoogli Music targets this trend in two ways. First, it generates playlists leveraging the user's existing music library, delivering a fresh face to a user's existing music investment. Second, it links up people with similar tastes and music libraries.

Core Technology

Music can defy quantization even by humans. Debates will rage about categorization of a particular album or track or artist. Yoogli Music's ability to discern personal preferences relies on patent pending Yoogli technology used for search and personalization. Yoogli's servers scrape the web looking for information on music. On the Yoogli servers, that information is sequenced into a form where Yoogli Music starts to infer relationships between songs.

But the human preference for music defies any single source or weighting. For this reason, Yoogli Music uses more of Yoogli's core technology to infer relationships between users. In the end, a user vector is produced that describes how one user will relate to other users in this system. With this information, the data from the scrape can be weighted according to the source of that data – allowing Yoogli Music to account for person and mood.

Even with all this data, playlist generation remains a difficult computational problem. If we assume that a playlist is to be generated solely from a user's music library, the generation problem becomes a library selection problem. Selecting an N song playlist from an M song library yields $M \cdot (M-1) \cdot (M-2) \dots \cdot (M-N+1)$ potential playlists. Even for modestly sized music libraries, this is a big number!

Yoogli Music uses a patent pending method to reduce this huge search space down to a number that is manageable. Using iterative probabilistic solvers to this NP hard problem, Yoogli Music is able to solve these problems in polynomial time, providing users with new playlists while they wait.

Social Networking

Of course, Yoogli Music does more than just generate playlists. It also recommends other's playlists and connects people with similar interests. These problems can be equally hard as the generation problem and here Yoogli Music is able to apply the core insight

By solving these problems, and by providing an easy to use web interface for browsing, Yoogli Music creates a music social network. Users are able to present themselves and their tastes. Users can browse others and their tastes. Finally, users can rely on Yoogli Music to recommend playlists and users to help direct that search.

Conclusion

Yoogli Music provides two synergistic core functions, and in doing so, creates a medium that is more compelling than either alone. First, Yoogli Music provides a state of the art playlist generator. This generator gives a fresh face to a user's existing music library by putting songs together in new and dynamic ways. Second, Yoogli Music enables a music centric social network where users are directed to people with whom they will likely have a musical affinity.